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| 10/511,723 | 10/19/2004 | Yoshinori Murazaki | 2004-1599A | 2531 |

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| EXAMINER |
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SANTIAGO, MARICELI

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| ART UNIT | PAPER NUMBER |
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2879

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12/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,723

Applicant(s)

MURAZAKI, YOSHINORI

Examiner

Mariceli Santiago

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-23 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/19/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment, filed on October 19, 2004, has been entered and acknowledged by the Examiner.

Cancellation of claims 1-10 has been entered.

Claims 11-23 are pending in the instant application.

Election/Restrictions

Claims 11-16 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 10, 2007.

Claim Objections

Claims 17, 21 and 22 are objected for the following reasons:

Claim 17 recites the phrases "M selected from the group consisting of Mg, Ca, Ba, Sr and at least one element represented by M'...", and "Mn, Fe, Cr, Sn.", the recitations are objectionable since they include grammatical errors by failing to group the different elements corresponding to M and M' with the use of a conjunction term (i.e., "and").

Claim 21 recites the phrases "M is at least one selected from the group consisting of Mg, Ca, Ba, Sr, M'...", "Mn, Fe, Cr, Sn, 0.0001..." and "Fe, Cl, Br, Ir.", the recitations are objectionable since they include grammatical errors by failing to group the different elements corresponding to M, M' and M" with the use of a conjunction term (i.e., "and").

Claim 22 includes essential subject matter enclosed within parentheses. While reference characters corresponding to elements recited in the detailed description of the

drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses, so as to avoid confusion with other numbers or characters which may appear in the claims, essential subject matter should not be enclosed within parentheses since references enclosed within parentheses do not constitute a limitation. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 recites the phrase "and/or", the phrase renders the claim indefinite since the claim terminology should be in the alternative only.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya (US 2,988,516) in view of Salam (US 2001/0022495).

Regarding claims 17-19, Kamiya discloses a light emitting device comprising a light emitting element and a phosphor which converts a part of a luminescence spectrum emitted from the light emitting element, wherein the luminescence spectrum of the light emitting element is located between the near ultraviolet region and a short-wavelength visible region (Column 1, lines 9-15), wherein the phosphor is an alkaline earth metal boric halide phosphor (Column 1, line 27) including at least one element represented by M selected from the group consisting of Mg, Ca, Ba and Sr (Mg, Column 1, line 27), and at least one element represented by M' selected from the group consisting of Mn, Fe, Cr and Sn (Mn, Column 1, lines 52-54).

Kamiya fails to exemplify the limitation of the light emitting element being a semiconductor light emitting element. However, in the same field of endeavor, Salam discloses a light emitting device provided with a nitride semiconductor light emitting element, including at least Ga and In/Al, and provided with a fluorescent composition which converts the UV radiation generated by the semiconductor element to a longer wavelength. It is art recognized the advantages of using semiconductor light emitting lamps over fluorescent lamps, such as increase life expectancy of the lamp, lower operating temperatures and lower energy requirements. It would have been considered within the capabilities of one skilled in the art to use the semiconductor light emitting element disclosed by Salam instead of the fluorescent lamp of Kamiya in order to obtain a light emitting device having the general advantages provided by the semiconductor light emitting element. Moreover, given Kamiya's teaching of the known excitation of the alkaline fluoroborate phosphor by UV radiation, one skilled in the art would contemplate using a UV emitting semiconductor light emitting element with a reasonable expectation of success similar to using fluorescent lamp. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the UV semiconductor light emitting element disclosed by Salam in the light emitting device of

Kamiya in order to obtain a light emitting device with increase life expectancy, lower operating temperatures and lower energy requirements.

Claim 17-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al. (JP 55-043101 A) in view of in view of Salam (US 2001/0022495).

Regarding claims 17-19, Hase discloses a light emitting device comprising a light emitting element and a phosphor (25) which converts a part of a luminescence spectrum emitted from the light emitting element, wherein the luminescence spectrum of the light emitting element is located between the near ultraviolet region and a short-wavelength visible region (Abstract), wherein the phosphor is an alkaline earth metal boric halide phosphor (chloroborate phosphor, Table 3, Page 4) including at least one element represented by M selected from the group consisting of Mg, Ca, Ba and Sr (Ca, Table 3), and at least one element represented by M' selected from the group consisting of Mn, Fe, Cr and Sn (Sn, Table 3).

Hase fails to exemplify the limitation of the light emitting element being a semiconductor light emitting element. However, in the same field of endeavor, Salam discloses a light emitting device provided with a nitride semiconductor light emitting element, including at least Ga and In/Al, and provided with a fluorescent composition which converts the UV radiation generated by the semiconductor element to a longer wavelength. It is art recognized the advantages of using semiconductor light emitting lamps over fluorescent lamps, such as increase life expectancy of the lamp, lower operating temperatures and lower energy requirements. It would have been considered within the capabilities of one skilled in the art to use the semiconductor light emitting element disclosed by Salam instead of the fluorescent lamp of Hase in order to obtain a light emitting device having the general advantages provided by the semiconductor light emitting element. Moreover, given Hase's teaching of the known excitation of the alkaline chloroborate

phosphor by UV radiation, one skilled in the art would contemplate using a UV emitting semiconductor light emitting element with a reasonable expectation of success similar to using fluorescent lamp. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the UV semiconductor light emitting element disclosed by Salam in the light emitting device of Hase in order to obtain a light emitting device with increase life expectancy, lower operating temperatures and lower energy requirements.

Regarding claim 21, Hase discloses a light emitting device wherein the phosphor is represented by a general formula of $(M_{1-x-y}Eu_xM'_y)_2B_5O_9M''$ (Table 3),

where M is at least one selected from the group consisting of Mg, Ca, Ba and Sr,

where M' is at least one selected from the group consisting of Mn, Fe, Cr and Sn, $0.0001 \leq x \leq 0.5$, $0.0001 \leq y \leq 0.5$, and

where M'' is at least one halogen selected from the group consisting of F, Cl, Br and I.

Allowable Subject Matter

Claims 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 20, and specifically comprising the limitation of the phosphor is an alkaline earth metal boric halide phosphor activated by at least Mn and Eu.

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Regarding claim 22, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 22, and specifically comprising the limitation of further comprising a phosphor selected from the group of phosphors stated in claim 22.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mariceli Santiago
Primary Examiner
Art Unit 2879